

REVISION OF THE SUBFAMILY TROPHONINAE (MOLLUSCA : GASTROPODA : MURICIDAE)
IN SOUTHERN AFRICA, WITH DESCRIPTION OF FOUR NEW SPECIES.

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MOTS CLEFS : *Mollusca* - *Gastropoda* - *Muricidae* - *Trophoninae* Afrique du Sud.

SUMMARY : All Southern African *Trophoninae* are reviewed and illustrated. Three genera are used in this monograph : *Trophon* s.l. Montfort, 1810 ; *Apixystus* Iredale, 1929 and *Afnitrophon* Tomlin, 1947.

Four new species are described : *Trophon barnardi* ; *Apixystus kilburni* ; *Apixystus transkeiensis* and *Afnitrophon inglorius*. Four single specimens remain undetermined owing to lack of material. Protoconchs are illustrated and the geographical distribution of each species is given on a map.

RESUME : Toutes les espèces appartenant à la sous-famille des *Trophoninae* en Afrique du Sud sont illustrées et commentées. Trois genres sont utilisés : *Trophon* s.l. Montfort, 1810 ; *Apixystus* Iredale, 1929 et *Afnitrophon* Tomlin, 1947.

Quatre espèces sont décrites comme nouvelles : *Trophon barnardi* ; *Apixystus kilburni* ; *Apixystus transkeiensis* et *Afnitrophon inglorius*.

Quatre spécimens restent indéterminés par manque de matériel. Toutes les protoconques sont illustrées et la distribution géographique est indiquée à l'aide de cartes.

ABBREVIATIONS :

AMS : Australian Museum, Sydney.

BMNH : British Museum (Natural History), London.

NM : Natal Museum, Pietermaritzburg.

SAM : South African Museum, Cape Town.

ZMA : Instituut voor Taxonomische Zoologie (Zoologisch Museum), Amsterdam.

ZMB : Museum für Naturkunde der Humboldt Universität zu Berlin (Zoologisches Museum).

INTRODUCTION :

All known South African *Trophon* species were named after 1900 and no complete revision was ever done, except Barnard (1959) in his "Contributions to the knowledge of South African Mollusca", but some of the species were insufficiently or not

illustrated, and/or were doubtfully included in the subfamily.

Only four authors have named the *Trophoninae* of that region : Sowerby, Thiele, Barnard, and more recently, Houart. Turton (1932) also named four species, but all must be included in other families.

CHRONOLOGICAL HISTORY WITH COMMENTS ON SOME DOUBTFULLY INCLUDED SPECIES.

SOWERBY, 1900

Trophon ? insignis = *Afnitrophon*.

SOWERBY, 1901

Trophon kowieensis = *Afnitrophon*.

Type-species by original designation of *Afnitrophon* Tomlin, 1947.

SOWERBY, 1921

Cominella acutispina : Proc. Malac. Soc. London 14 : 125, text fig.

First included in the *Muricidae* by Tomlin (1947 : 127) who placed it in the new genus *Afnitrophon*.

It is very difficult to include it in this genus owing to its large size, its smooth nuclear whorls and its cut siphonal canal. Its very short siphonal canal made even the subfamily doubtful, and this was confirmed by Kilburn and Rippey (1982 : 91), who regarded it as a form of *Nucella dubia* (Krauss, 1848). Kilburn (in litt.) confirmed he saw the holotype in the Turton collection (Oxford Mus.) and that it is only the sheltered form of *Nucella dubia*.

Barnard (1959 : 205) illustrated the radula of what he thought was *Trophon acutispina*. Apparently, as seen on the drawing, it consists of a rachidian with a large central cusp, 2 large lateral cusps and 2 smaller marginals. The lateral denticle is long and slender.

The genus *Nucella* has a radula which bears almost the same ornamentation but with additional small denticles (Barnard, 1959 : 194).

The radular characters of the subfamily *Thaidinae* (to which the genus *Nucella* belongs) are very variable and may vary within a same species, influenced by growth, seasonal changes, sex, etc. (Fujioka, 1985). So, it may be proved that the radula illustrated by Barnard is of *Nucella dubia*.

THIELE, 1925

Trophon ? agulhasensis = *Afnitrophon*.

Trophon jucundus.

Trophon sansibaricus.

Trophon sp. (170, pl. 18, fig. 16).

FIGS. 19, 32, 54.

Is most probably an undescribed species. It may only be compared with *Trophon sansibaricus* but it has 11 axial lamellae on the first teleoconch whorl and 14 on the second, while *sansibaricus* has 9 axial lamellae on the first whorl and 12 on the second.

Trophon sp. presents 3 spiral cords from third teleoconch whorl on, while *T. sansibaricus* has only 2. Moreover, the protoconch of the *Trophon* sp. is wider and more globulous.

It was dredged from 35°19'S, 20°12'E in 126 meters (Agulhas Bank on the original label). It is here included in the Southern African *Trophoninae* but I prefer to leave it unnamed until other material is available.

TURTON, 1932

Trophon denseplicatus : 75, pl. 18, fig. 542. Is not a *Muricidae*, but most probably a *Turridae*.

Trophon gemmulatus : 75, pl. 18, fig. 543. Is not a *Muricidae*, but most probably another *Turridae*.

Trophon ornatus : 75, pl. 18, fig. 544. Is the protoconch of a *Turridae* (cf. *Acrochela acus* Barnard, 1958 : 149, fig. 21e).

Trophon subglobosus : 75, pl. 18, fig. 545. Turton noted : "genus doubtful". I may only say he was right, it is not a *Trophon* and even not a *Muricidae*.

TOMLIN, 1947

Afnitrophon gen.n. : 271.

Type-species : *Trophon kowieensis* Sowerby, 1901.

Four other species were originally included : *Trophon ? agulhasensis* Thiele, 1925 ; *Trophon jucundus* Thiele, 1925 ; *Trophon ? insignis* Sowerby, 1900 and *Cominella acutispina* Sowerby, 1921.

Two species, *Trophon jucundus* and *Cominella acutispina*, are now referred to other genera, respectively *Trophon* (here commented) and *Nucella* (*Thaidinae*).

BARNARD, 1959

Trophon acceptans.

Trophon ? incertus : 203, fig. 43(a). Is a *Turridae* (type material examined).

Trophon mioplectos.

Trophon johannthielei (??= *Trophon pulchellus* Schepman, 1911).

Trophon pistillum.

BARNARD, 1969

Trophon beatum : 638, fig. 18c.

There is no record of any type of *Trophon beatum* Barnard, 1969, in the South African Museum (M.G.van der Merwe, in litt.), nor did Barnard mention any holotype in his description. The shell was described using a specimen from False Bay, from the collection of the University of Cape Town ; this collection is now housed in the South African Museum, but there is no trace of that shell on their card index (M.G.van der Merwe, in litt.). However, this shell could have been, as suggested by Mrs.van der Merwe, reidentified as something else later, which makes it probably impossible to locate.

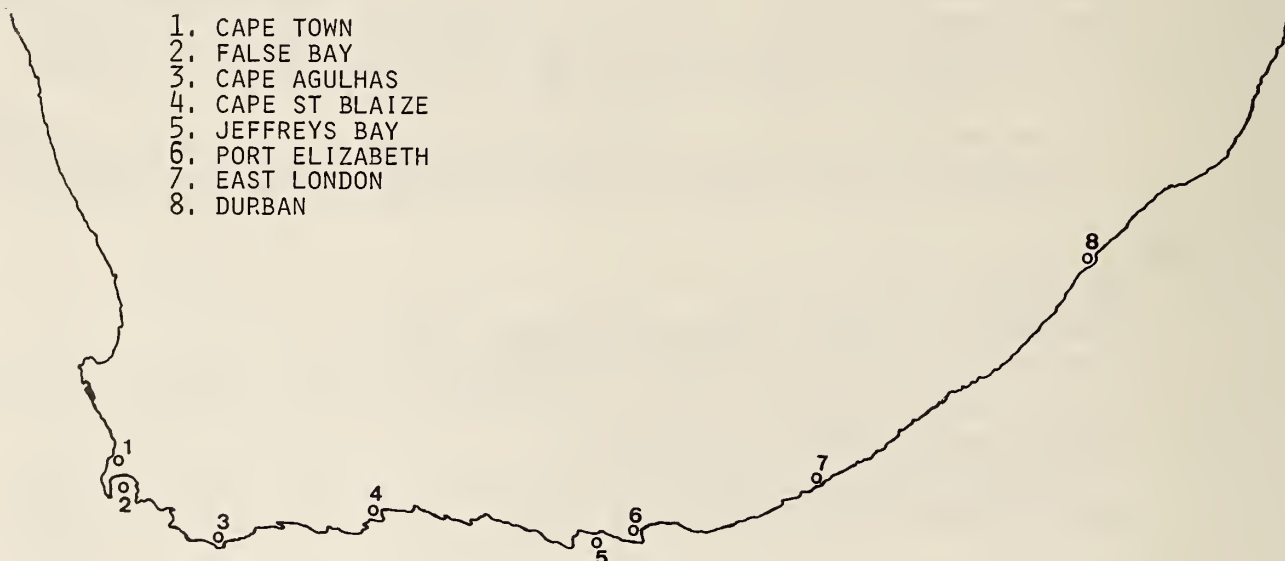
It was described from the protoconch and 4 teleoconch whorls, but the illustration of Barnard strongly suggests its inclusion in the family *Turridae*.

Anyway, in the absence of any type material and the impossibility of recognizing it only with the help of the illustration, I will treat this species as a *nomen dubium*.

HOUART, 1983

Trophon purdyae

MAP WITH IMPORTANT LOCALITIES :



STUDY OF RECOGNIZED RECENT TAXA :

GENUS : *AFRITROPHON* Tomlin, 1947.

Type-species by original designation : *Trophon kowieensis* Sowerby, 1901.

Shell small and narrow, from 5 to approximately 8 mm. in length. Protoconch keeled and sculptured with spiral cord(s). Spire very high. Teleoconch whorls with strong nodulose spiral cords. Aperture ovate. Siphonal canal open and short.

AFRITROPHON INSIGNIS (Sowerby, 1900)

Figs. 3, 26, 40

Trophon ? insignis Sowerby, 1900 : 2, pl. 1, fig. 1 ;

Thiele, 1925 : pl. 18, fig. 14 ; Barnard, 1951 : pl.8, fig. 17 ; Barnard, 1959 : fig. 45(b); Kensley, 1973 : fig. 458; Kaicher, 1979 : card 2052; Kaicher, 1980 : card 2576; Kilburn and Rippey : pl. 19, fig. 13.

TYPE LOCALITY :

The Kowie (= Port Alfred).

TYPE MATERIAL :

1 syntype BMNH 1900.5.22.76.

MATERIAL EXAMINED :

Several specimens from Gonubie and Kwelega ; Jeffreys Bay ; Cape Agulhas ; East London : Fuller's Bay ; Port Alfred (NM, R. Isaacs and R. Houart coll.).

DISTRIBUTION :

From Cape Agulhas to Kwelega, usually found in shell grit washed ashore.

REMARKS :

A curious little species which cannot be confounded with any other with its typical shape. Protoconch of 2 1/4 shouldered whorls, crossed by 3 spiral threads ; last nuclear whorl heavy spirally and axially sculptured.

Maximum length : 7 mm.

AFRITROPHON KOWIEENSIS (Sowerby, 1901)

Figs. 1, 24, 41

Trophon kowieensis Sowerby, 1901 : 213, pl. 22, fig. 16 ;

Barnard, 1951 : pl. 8, fig. 18 ; Barnard, 1959 : figs. 44(e) -radula-, 45(a); Kensley, 1973 : fig. 459 ; Radwin and D'Attilio, 1976 : text fig. 117 ; Kaicher, 1980 : card 2505.

TYPE LOCALITY :

The Kowie (= Port Alfred).

TYPE MATERIAL :

3 syntypes BMNH 1901.10.3.59-61.

MATERIAL EXAMINED :

4 specimens from Cape St Blaize, NM B900 ; specimens from Gonubie Beach, East London, R. Houart coll. & R. Isaacs coll.

DISTRIBUTION :

From False Bay (Barnard, 1959) to East London, usually found in shell grit. Barnard (1959) mentioned specimens living at a depth from 30 to 110 meters.

REMARKS :

Type-species of the genus *Afrित्रophon* and typical by its protoconch consisting of 1 3/4 keeled whorls, crossed by 3 spiral cords. Spiral cords of last nuclear whorl nodulose.

Shell color is brown; the species may reach a length of 8.2 mm.

AFRITROPHON AGULHASENSIS (Thiele, 1925)

Figs. 2, 25, 42

Trophon agulhasensis Thiele, 1925 : 169, pl. 18, fig. 12;

Barnard, 1959 : fig. 45(c) ; Kensley, 1973 : fig. 457.

TYPE LOCALITY :

Agulhasbank, 35°16'S ; 22°26'7 E, -155 meters.

TYPE MATERIAL :

1 syntype ZMB.

MATERIAL EXAMINED :

Type material ; several specimens from Cape Agulhas, NM A2750 ; 3 specimens from Port Elizabeth (dead); 3 specimens from Port Elizabeth (live taken), NM B895 ; 4 specimens from Cape Town, Rocklands Beach, Sea Point, NM A 1330 ; 5 specimens from False Bay (Cape), NM A1859 ; 6 specimens from Dalebrook, False Bay (live taken), R. Houart coll.

DISTRIBUTION :

From Cape Town to Port Elizabeth.

REMARKS :

This species seems to be more common than *A. kowieensis* from which it differs by its non-nodulose protoconch ; the shell is more nodulose and has no fine axial threads connecting the spiral cords to each other as in *A. kowieensis*. Shell color is brown ; maximum length : 8 mm.

AFRITROPHON INGLORIUS sp. nov.

Figs. 5, 6, 27, 43

DESCRIPTION :

Shell medium-sized for the genus, elongate. Aperture ovate and large. Columellar lip smooth, completely adherent to the shell. Anal notch very shallow and large. Outer lip and inner part of outer lip smooth.

Spire high and acute, consisting of $1\frac{3}{4}$ nuclear whorls ; first whorl strongly keeled on its upper side, second with numerous axial ribs and a slightly shallower carina. $3\frac{1}{2}$ elongate, slightly shouldered teleoconch whorls. Suture impressed. First teleoconch whorl bearing 11 sharp axial lamellae, second 12 and last whorl 9. Spiral sculpture consisting of 4 cords. Where the spiral cords cross the axial lamellae, small, open spinelets are formed, giving the shell a somewhat spinose appearance.

Spire whorls with 2 spiral cords.

Siphonal canal short, broadly open, bearing 2 shallow spiral cords.

Color uniformly white.

DIMENSIONS :

Holotype : 5.5 x 2.5 mm.

MATERIAL :

Holotype Natal Museum n° C7868.

TYPE LOCALITY :

Transkei : off Nqabara Point ($32^{\circ}25,0'S.$, $28^{\circ}58.3'E$), -330-340 m., muddy sand, broken corals and shells. Dredged R.V. MEIRING NAUDE, 13.07.1984.

REMARKS :

This new species differs from all the other ones by its characteristic nuclear whorls. Its outline, spiral and ornamentation look somewhat like those of a "mini" *Nipponotrophon fabricii* (Beck in Möller), but the genus *Afritrophon* is more adequate for its typical protoconch, size and geographical distribution.

GENUS* : *TROPHON* Montfort, 1810.

Type-species by original designation : *Murex magellanicus* Gmelin, 1791

= *Buccinum geversianus* Pallas, 1774.

The genera *Trophonopsis* Bucquoy and Dautzenberg, 1882 ; *Boreotrophon* Fischer, 1884 ; *Straminotrophon* Powell, 1951, and probably other ones would be better considered as synonyms (or subgenera) of *Trophon* s.s..

Bouchet and Warén (1985) noted the great variability of the species confined in these (sub)genera, as well as the very similar radulae and opercula in all of them.

After having studied numerous specimens of these so-called different genera, I came almost to the same conclusion ; therefore, the South African species included here are all treated as *Trophon s.l.*, further studies being necessary before any objective opinion can be reached.

TROPHON JUCUNDUS Thiele, 1925

Figs. 7, 28, 44

Thiele, 1925 : 169, pl. 18, fig. 13 ;

Kensley, 1980 : fig. 489. The card 2059 from Kaicher (1979) is not *T. jucundus*.

TYPE LOCALITY :

Agulhasbank, 35°16' S, 22°26.7' E, -155 m.

TYPE MATERIAL :

1 syntype ZMB.

MATERIAL EXAMINED :

Type material ; 2 specimens from off Cape St Blaize, NM A4071 ; several specimens from Cape, between Cape St Blaize and Port Elizabeth (all ex pisce), NM B853.

DISTRIBUTION :

From Agulhasbank to Port Elizabeth.

REMARKS :

This species was included in the genus *Afnitrophon* by Tomlin (1947), but its smooth protoconch of 1 3/4 glossy whorls and its globulous and large shell are not at all typical for this genus.

Maximum size : 11.1 mm.

Color ochre to brownish.

TROPHON SANSIBARICUS Thiele, 1925

Figs. 10, 11, 29, 56

Thiele, 1925 : 170, pl. 18, fig. 17.

TYPE LOCALITY :

St. 245 (Sansibar-Kanal, -463 m.).

TYPE MATERIAL :

4 syntypes ZMB.

MATERIAL EXAMINED :

Type material ; 2 specimens from Transkei : off Rame Head (31°56.1' S, 29°26.5' E), 410-430 meters, stones, some sand, NM C5873 and C 5876.

DISTRIBUTION :

From Transkei to Zanzibar Channel.

REMARKS :

Comparison with the type material allowed us to refer a small South African specimen to this species. Spines of typical *T. sansibaricus* are somewhat longer, but this is not a real specific difference. The syntypes, which all have 4 whorls and are probably not adult shells, present the same spiral and axial ornamentation and have a same larval shell consisting of 1 1/2 rounded and smooth whorls.

TROPHON ACCEPTANS Barnard, 1959

Figs. 8, 9, 45

Barnard, 1959 : 202, figs 40(d), 43(b) - in part - ;

Kensley, 1980 : fig. 486.

TYPE LOCALITY :

Cape Point E. 3/4 N., distant 36 miles, 630 fathoms.

TYPE MATERIAL :

Holotype SAM A3449 ; 2 paratypes SAM A3449 ; 1 paratype SAM A 3473 ; 1 paratype SAM A 3480.

MATERIAL EXAMINED :

Type material ; 1 specimen from off Cape Point, deep water, NM 7999.

DISTRIBUTION :

Only known from the type locality.

REMARKS :

Originally, Barnard (1959 : 202) mentioned several juveniles from other localities, but later (1969 : 638) he revised his conception of that species, regarding the juveniles as separate species needing more material and study.

With the help of important material sent to me by the Natal Museum, I could easily separate two species. The juvenile turned out to be new to science and is here described (see *Trophon barnardi*).

Barnard (1969 : 638) also suggested that *Trophon acceptans* could be synonymized with *Trophon guineensis* Thiele, 1925 (= *Trophon cossmanni* Locard, 1897). This is

also mentioned by Bouchet and Warén (1985 : 139). The examination of a fully developed *T. acceptans* of nearly 35 mm. (see fig. 9) from the type material of both species, and of important additional material of the Northeast Atlantic *Trophon cossmanni* Locard, 1897, led me to be convinced that *T. acceptans* is separate. It shows a comparatively shorter siphonal canal, a broader last whorl and more numerous axial lamellae than *T. cossmanni*. Observation of larval shell and animal would however be welcome to support this separation.

TROPHON SP.

Fig.30

The Natal Museum collection contains a specimen of what could be a juvenile of *Trophon acceptans*, with 1 1/2 rounded nuclear whorls and 2 1/4 teleoconch whorls. The shell has a length of 3.2 mm. First teleoconch whorl is rounded, second is somewhat shouldered.

More material is needed for sure identification.

LOCALITY :

Transkei : off Whale Rock (32°00.9' S, 29°21.8' E) 400-420 meters; coarse sand, old shell debris, stones. Dredged R.V. MEIRING NAUDE, 20/07/1982. NM C 7809.

TROPHON MIOPECTOS Barnard, 1959

Figs. 12, 31, 46

Barnard, 1959 : 206, fig. 44(a) ;

Kensley, 1980 : fig. 490.

TYPE LOCALITY :

34°27' S, 25°42' E, -256 fathoms.

TYPE MATERIAL :

Holotype SAM A8631.

MATERIAL EXAMINED :

Type material.

DISTRIBUTION :

Only known from the type locality.

REMARKS :

A very tiny little shell with 3 teleoconch whorls (probably not adult).

It was originally compared with *Trophon denseplicatus* Turton, 1932 and *Trophon gemmulatus* Turton, 1932 (two turrids), but has very little in common with either species. Examination of other South African trophons permits comparison with the similar *Trophon sansibaricus* Thiele, 1925. The holotype of *T. mioplectos* was found dead, with blunted lamellae and a broken siphonal canal, and although it has a more elongate protoconch than *T. sansibaricus*, a more rounded first whorl and more numerous axial lamellae on the last whorl, I hesitated to treat it here as a separate species. Finally, I accepted these differences as important enough to separate it from *T. sansibaricus*; but of course, examination of more material may prove later that both are conspecific. The shell is whitish with a slightly elongate protoconch of 1 1/2 whorls.

TROPHON PULCHELLUS Schepman, 1911

Figs. 13, 14, 36, 55

Schepman, 1911 : 339, pl. 21, fig. 2 ;

?? = *Trophon johannthielei* Barnard, 1959 : 206, fig. 44(b).

TYPE LOCALITIES :

T. pulchellus : Sta. 159, 0°59.1' S, 129°48' E, Halmahera Sea, -411 meters, coarse sand.

T. johannthielei : Off East London, -400-450 fathoms.

TYPE MATERIAL :

T. pulchellus : 1 syntype ZMA 3.11.081 ; 1 syntype in the Rijksmuseum. Natuurlijke Historie (R.G.Moolenbeek, in litt.).

T. johannthielei : holotype SAM A8844.

MATERIAL EXAMINED :

Syntype (ZMA) of *T. pulchellus* and holotype of *T. johannthielei*.

DISTRIBUTION :

Only known from the type localities.

REMARKS :

The type material of *T. johannthielei* is badly damaged but it was possible to compare both species only with the help of the protoconch and the two first teleoconch whorls. I could not separate them on any major feature ; both have the same frilly appearance with laminate varices and same paucispiral, rounded protoconch. More material of the South African form would be welcome to facilitate the comparison of both species, but it is here tentatively synonymized with *Trophon pulchellus* Schepman.

Barnard (1959 : 206) also included "*Trophon* sp." from Thiele (1925 : pl. 30, fig. 16) as the same, but the *Trophon* sp. has a flatter and rounded protoconch, a first teleoconch whorl with more numerous axial lamellae and obsolete spiral sculpture on all whorls. Unfortunately, no other specimens of *T. pulchellus* could be found among the extensive material of the Natal Museum. It may be compared with *Trophon jucundus*, which also shows a rounded protoconch, although flatter, but *T. pulchellus* has 9 to 10 axial lamellae on the first teleoconch whorl and 10 to 11 on the second, while *T. jucundus* has 12 to 14 axial lamellae on the first whorl and 17 on the second.

TROPHON PISTILLUM Barnard, 1959

Figs. 15, 33, 47

Barnard, 1959 : 206, fig. 44(f).

TYPE LOCALITY :

Off Cape Natal (Durban), -440 fathoms.

TYPE MATERIAL :

Holotype SAM A8842.

MATERIAL EXAMINED :

Type material.

DISTRIBUTION :

Only known from the type locality.

REMARKS :

Another species of which the type was badly damaged, but fortunately, the protoconch, although separated from the body, could be located and examined. The last whorl bears 4 nodulose spiral threads and numerous axial lamellae. The protoconch is paucispiral with 1 1/4 or 1 1/2 rounded whorls (somewhat broken). No similar species could be found.

TROPHON PURDYAE Houart, 1983

Figs. 16, 34, 45, 48

Houart, 1983 : 449, figs. 1, 4-6 ;

Vokes, 1985 : 160 ; Houart, 1986 : 9.

TYPE LOCALITY :

Eastern Cape Province : trawled between Jeffreys Bay and Port Elizabeth.

TYPE MATERIAL :

Holotype NM B4770/T2667.

MATERIAL EXAMINED :

Original type material (see Houart, 1983).

DISTRIBUTION :

No other records but the original type locality.

REMARKS :

This species was originally compared with two South African muricids : *Nucella wahlbergi* (Krauss, 1848) (sometimes classified as a *Trophon*) and *Ocenebra sperata* (Cossmann, 1921).

It differs from *Nucella wahlbergi* by its rounded axial ribs, more shouldered whorls, smaller size, and denticulate aperture (lirate for *N. wahlbergi*) ; moreover, radula and operculum of *N. wahlbergi* are typical *Nucella*-like (Dr. Kilburn, in litt.)

From *O. sperata*, it differs by its more shouldered whorls, shallower axial ribs, smaller and more elongate protoconch, and by its radula (Barnard, 1957).

TROPHON BARNARDI sp. nov.

Figs. 17, 18, 37, 49

DESCRIPTION :

Shell small for the genus, from 9 to 10.2 mm. in length, elongate and fusiform, aperture ovate and broad. Columellar lip smooth, completely adherent to the shell. No visible anal notch. Outer lip and inner side of outer lip smooth. Spire high and acute, consisting of 1 1/2 to 2 glossy and conical nuclear whorls and 4 to 5 elongate teleoconch whorls. Suture impressed. First teleoconch whorl bearing 8 to 9 sharp axial lamellae, second 10 to 11 and last whorl 8. No other axial sculpture. Spiral sculpture consisting of numerous microscopical striae not always visible ; otherwise smooth. In very few specimens, additional spiral sculpture consists of 5 to 6 smooth cords, most apparent on the axial lamellae and giving them a frilly appearance. Siphonal canal smooth, moderately long and broadly open. Color uniformly milky or glossy white, sometimes light brown.

MATERIAL :

Holotype Natal Museum A 4403.

1 paratype NM C4060, Transkei, off Qolora R., -440-446 m.; fine sand and branching coral; 1 paratype NM C4452, Transkei, off Shixini Point, -400 m., sand; 1 paratype NM C5860, Transkei, off Rame Head, -410-430 m., stones, some sand ;

5 paratypes NM C5875, same locality ; 2 paratypes NM C5876, same locality ; 2 paratypes NM C5888, Transkei, off Nthlonyane R., -95 m., sponge rubble ; 6 paratypes NM C5890, same locality ; 2 paratypes NM C5895, Transkei, off Port Grosvernor, -100-110 m., pebbles, some sand ; 2 paratypes NM C5900, Transkei, off Rame Head, -410-430 m., stones, some sand ; 2 paratypes NM C6798, Transkei, off Stony Point, -390-400 m., muddy sand, small stones ; 2 paratypes NM C6821, Transkei, off Stony Point, -360 m., coarse sand ; 1 paratype NM C6883, Transkei, off Sandy Point, -450 m., muddy sand, stones ; 1 paratype NM C6934, Transkei, off Sandy Point, -480-490 m., fine sandy mud, stones, clay ; 1 paratype NM C7006, Transkei, off Sandy Point, -380-400 m., muddy sand ; 1 paratype NM C7077, Transkei, off Shixini Point, -500 m., muddy sand, coral rubble ; 1 paratype NM C7337, Transkei, off Kei R., -390 m., coarse sand ; 1 paratype NM C7703, Transkei, off Rame Head, -410-430 m., stones, some sand ; 1 paratype NM C7854, Transkei, off Sandy Point, -450-498 m., fine sand and stones ; 2 paratypes NM C8862, Transkei, off Mgazi River, -350 m., glutinous black mud, stones ; 2 paratypes NM C9048, Transkei, off Mbashe River, -450-500 m., coarse sand, some mud ; 3 paratypes NM C9108, Transkei, off Mbashe River, -295-350 m., coarse sand ; 1 paratype NM C9146, Transkei, off Nthlonyane River, 320-350 m., coarse sand ; 1 paratype NM C9916, Transkei, off Mbotyi, -250 m., coarse sand, stones ; 1 paratype NM C9954, Transkei, off Shixini Point, -240 m., sand and old rubble ; 1 paratype AMS C153007, (ex NM C5888) ; 1 paratype MNHN, (ex NM C9108) ; 1 paratype R. Houart coll., Transkei, off Nqabara Point, -250 m., live sponges, some corals (ex NM C7874) ; 1 paratype R. Houart coll., Transkei, off Waterfall Bluff, -230-250 m., sandstone, shell debris (ex NM C9859).

DIMENSIONS OF THE HOLOTYPE :

10.2 x 4.2 mm.

TYPE LOCALITY :

Off Cape St Blaize ; ex gut *Congiopodus spinifer* (Smith).

DISTRIBUTION :

From Cape St Blaize (holotype and Barnard, 1959) to Transkei (Port Grosvernor), mostly in sand, from 95 to 500 meters depth.

REMARKS :

This new species was considered by Barnard (1959 : 202) as a juvenile of *Trophon acceptans*. However, in 1969 (638), he regarded them as separate but needing more study. It is not comparable with any other South African *Trophon* species.

Trophon declinans Watson, 1883, from the Kerguelen Islands, a related species, is large (type : 20 mm.) for the same number of teleoconch whorls ; it has 2 smooth globulose nuclear whorls and the last whorl bears 15 to 20 axial lamellae instead of 8 for the new species.

Trophon macquariensis Powell, 1957, is also a large shell of 22 mm. with 4 1/2 teleoconch whorls and 18 axial lamellae on the last whorl.

GENUS : *APIXYSTUS* Iredale, 1929.

Type-species by original designation : *Trophon stimuleus* Hedley, 1907.

Shell small, to approximately 10 mm length. Protoconch smooth, sometimes keeled. Spire high and acute. Teleoconch whorls spinose. Axial ribs laminate, bearing short, open spinelets where they cross the rounded spiral cords. Aperture rounded and broad. Siphonal canal short to moderate in length. Color usually whitish. Believed to be confined until now to the Australian waters, this genus is very appropriate for the following South African species :

APIXYSTUS KILBURNI sp. nov.

Figs. 20, 21, 38, 50

DESCRIPTION :

Shell moderately large for the genus, fragile. Aperture rounded. Columellar lip erect and smooth. No visible anal notch. Outer apertural lip and inner side of outer lip smooth.

Spire high, consisting of 1 1/2 glossy and rounded nuclear whorls and 4 1/2 angulate and shouldered teleoconch whorls. Suture impressed. Spire whorls and last whorl bearing 7 to 8 laminate, webbed axial lamellae and 3 barely visible spiral cords, one on the shoulder, second on the anterior part of the last whorl and third, very shallow, just above the siphonal canal. Where the spiral cords cross the axial lamellae they give rise to short, open, spiny projections. No other sculpture except axial growth lines.

Siphonal canal short, moderately large and open, slightly backwards recurved. Color translucent white to light brown.

MATERIAL :

Holotype NM C1898.

1 paratype NM C1236, Transkei, off Port Grosvernor, 31°26.2' S, 29°57.6' E, -100-115 m., sand, some mud, solitary coral, shells. Dredged R.V. MEIRING NAUDE, August 1981 ; 1 paratype NM C7779, Transkei, off Rame Head, 31°50.7' S, 29°28.5' E -150-160 m., sponges. Dredged R.V. MEIRING NAUDE, 20 August 1982 ; 1 paratype NM C8555, Transkei, off Bulungulu River, 32°14.2' S, 19°08.6' E, -300-370 m., coarse sand. Dredged R.V. MEIRING NAUDE, 5 July 1985 ; 1 paratype R. Houart coll., Transkei, off Mtamvuna River, 31°08.4' S, 30°16.6' E, -160 m., sponges, gorgonians, sand. Dredged R.V. MEIRING NAUDE, 7 July 1986 (ex NM C9931).

DIMENSIONS OF THE HOLOTYPE :

8.5 x 5.9 mm.

TYPE LOCALITY :

Transkei, off Rame Head, 31°50.7' S, 29°28.5' E, -150-160 m., sponges. Dredged R.V. MEIRING NAUDE, 20 August 1982.

REMARKS :

No South African species is comparable. *Apixystus stimuleus* (Hedley, 1907) from New South Wales, Australia, is smaller, more frilly, has 2 conical nuclear whorls and 12 laminate varices on each whorl. A South Australian species, *Apixystus recurvatus* (Verco, 1909) is smaller, has a prominent conical protoconch of 2 1/2 whorls with acute apex and bears 13 axial lamellae on the last whorl.

APIXYSTUS TRANSKEIENSIS sp. nov.

Figs. 22, 39, 51

DESCRIPTION :

Shell medium-sized for the genus, fragile. Aperture rounded. Columellar lip erect anteriorly and briefly adherent to the shell posteriorly, narrow and smooth. No visible anal notch. Outer apertural lip and inner side of outer apertural lip smooth. Spire high and acute, consisting of a paucispiral protoconch of 1 1/2 to 2 shouldered and angulate nuclear whorls and 3 to 3 1/2 rounded, laminate teleoconch whorls. Suture impressed. Last whorl bearing 9 to 11 frilly axial lamellae and 4 spiral cords ; spire whorls with 2 spiral cords and 11 to 12 axial lamellae. Where the spiral cords cross the axial lamellae they give rise to short, open, spiny projections. Spines on most anterior spiral ridge strongly bent downwards. Siphonal canal moderately long, open, slightly bent backwards. Color white.

MATERIAL :

Holotype NM C5902.

2 paratypes NM C5861, Transkei, off Rame Head, 31°56.1' S , 29°26.5' E , -410-430 m., stones, some sand. Dredged R.V. MEIRING NAUDE, 20.07.1982 ; 1 paratype NM C5872, Transkei, off Mbashe R., 32°18.2' S , 29°04.1' E , -200-220 m., sponge rubble. Dredged R.V. MEIRING NAUDE, 18.07.1982 ; 1 paratype NM C5880, Transkei, off Mtamvuna River, 31°09.7' S , 30°15.3' E , -120-140 m., sponge, rubble. Dredged R.V. MEIRING NAUDE, 08.1981 ; 1 paratype NM C6592, Transkei, off Shixini Point, 32°31.7' S , 28°52.7' E , -490 m., muddy sand, coral rubble. Dredged R.V. MEIRING NAUDE, 13.07.1984 ; 2 paratypes NM C7220, Transkei, off Whale Rock, 32°01.3' S , 29°19.3' E , -150-200 m., sponge rubble. Dredged R.V. MEIRING NAUDE, 20.07.1982 ; 1 paratype NM C7871, Transkei, off Qora R., 32°34.0' S , 28°49.7' E , -400-420 m., coarse, slightly muddy sand. Dredged R.V. MEIRING NAUDE, 12.07.1984 ; 1 paratype NM C9917, Transkei, off Mbotyi, 31°33.2' S , 29°51.9' E , -250 m., coarse sand, stones. Dredged R.V. MEIRING NAUDE, 04.07.1986 ; 1 paratype NM C9931, Transkei, off Mtamvuna River, 31°08.4' S , 30°16.6' E , -160 m., sponges, gorgonians, sand. Dredged R.V. MEIRING NAUDE, 07.07.1986 ; 1 paratype R. Houart coll., Transkei, off Mtamvuna River, 31°09.7' S , 30°15.3' E , -120-140 m., sponge rubble. Dredged R.V. MEIRING NAUDE, 08.1981 (ex NM C5880).

DIMENSIONS OF THE HOLOTYPE :

5.1 x 3.2 mm.

LARGEST PARATYPE :

5.9 x 3.5 mm.

TYPE LOCALITY :

Transkei, off Nthlonyane R., 32°17.5' S , 29°03.9' E, -130 m., coarse brown sand, old calcareous fragments. Dredged R.V. MEIRING NAUDE, 17.07.1982.

REMARKS :

Two species may be compared, both Australian : *Apixystus polyphillus* (Tenison-Woods, 1879) and *Apixystus stimuleus* (Hedley, 1907).

A. polyphillus is more fusiform ; the columellar lip is entirely adherent to the shell ; the pointed open spines are lower and the protoconch is totally different, very high and acute. *A. stimuleus* differs by its more rounded protoconch, but also, it has small obsolete denticles inside of the outer apertural lip and the columellar lip is entirely adherent to the shell.

APIXYSTUS SP. 1

Figs.23, 52

A small juvenile of 4.1 mm. with 1 1/2 nuclear whorls^c and only 2 1/4 teleoconch whorls, somewhat related to *Apixystus kilburni* n.sp., although having a twice larger and flat protoconch and more pronounced spiral sculpture. It is considered here as a possible new species.

MATERIAL :

St. D3, NM C1236 (same locality as paratype of *A. kilburni*).

APIXYSTUS SP. 2

A frilly but somewhat damaged specimen of 5.8 mm., also somewhat close to *A. kilburni* ; although having a similar protoconch, it has stronger spiral sculpture, 9 to 10 axial lamellae and longer spiny projections. This may be only a variant of the new species but the specimen is in too poor condition for certainty.

MATERIAL :

St. D3, NM C1235 (same locality as C1236).

ACKNOWLEDGEMENTS :

I wish to thank particularly Dr. R.N. Kilburn (Natal Museum) who provided me the material for study, also Dr. H.E. Coomans and Mr. R.G. Moolenbeek (Zool. Mus., Amsterdam), Dr. R. Kiliyas (Zool. Mus. Berlin) and Mrs. M.G. van der Merwe (South African Mus.) for the very useful loan of type material.

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BIBLIOGRAPHY :

- BARNARD, K.H., 1951 - A beginner's Guide to South African Shells. Maskew Miller, Cape Town.
- , 1957 - The Radula of *Latiaxis fritschi* and description of a new fossarid. *J. Conch.* 24 (5) : 180-181.
- , 1959 - Contributions to the knowledge of South African marine Mollusca. Part II. Gastropoda : Prosobranchiata : Rachiglossa. *Ann. S. Afr. Museum* 45 : 1 - 237.
- , 1969 - Contributions to the knowledge of South African marine Mollusca. Part VI. Supplement. *Ann. S. Afr. Museum* 47 : 595-661.
- BOUCHET, Ph. & A. WARREN, 1985 - Revision of the Northeast Atlantic bathyal and abyssal neogastropoda excluding Turridae (Mollusca, Gastropoda). *Boll. Malac.* suppl. 1 : 123-296, Milano.
- FUJIOKA, Y., 1985 - Systematic Evaluation of Radular Characters in Thaidinae (Gastropoda : Muricidae). *Jour. Science* Hiroshima Univ. ser. B, div. 1 (Zoology) Vol. 31(2) : 235-287, pls. 1-8.
- HOUART, R., 1983 - A new *Trophon* from southern Africa (Gastropoda : Muricidae : Trophoninae). *Ann. Natal Mus.* 25(2) : 449-451.
- , 1986 - New Muricids named after 1971. *La Conchiglia* 18 (206-207) : 8-14.
- KAICHER, S.D., 1979-80 - Card Catalogue of world-wide Shells, Muricidae IV & V. St. Petersburg, Florida.

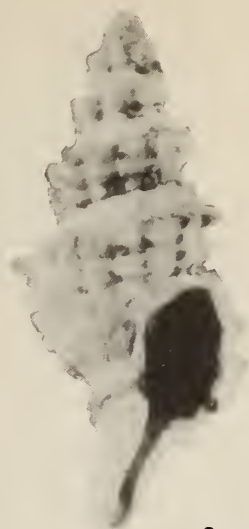
- KENSLEY, B., 1973 - Sea-Shell's of Southern Africa - Gastropoda : 1-255, index, 910 text figs. Cape Town.
- KILBURN, R. & E. RIPPEY, 1982. Seashells of Southern Africa : 1-249, 46 pls., 230 text figs., Hong Kong.
- SCHEPMAN, M.M., 1911 - The Prosobranchia of the Siboga Expedition. Pt.4, Livr.58, Brill, Leiden : 338-352, pl. XXI.
- RADWIN, G. & A. D'ATTILIO, 1976 - *MUREX* Shells of the World, an Illustrated Guide to the Muricidae : 1-284, 32 pls., 192 text figs., Stanford.
- SOWERBY, G.B., 1900 - On some Marine Shells from Pondoland and the Kowie, with description of seventeen new species. *Proc. Malac. Soc. London* 4 : 1-7.
- , 1901 - On seven new species of marine mollusca collected by Dr. H. Becker at the "Kowie", South Africa. *Proc. Malac. Soc. London* 4 : 213-15.
- , 1921 - New shells from Port Alfred, collected by Lieut. Colonel W.H. Turton. *Proc. Malac. Soc. London* 14 : 125-127.
- THIELE, J., 1925 - Gastropoda der Deutschen Tiefsee-Expedition II. Teil. Wissenschaftliche Ergebnisse der Deutschen Tiefsee-Expedition aus dem Dampfer Valdivia 1898-1899, 17(2) : 38-182, pls. 13-46 .
- TOMLIN, J.R. le B., 1947 - New South African Genus of Muricidae . *Journ. Conch.* 22 : 271.
- TURTON, W.H., 1932 - Marine Shells of Port Alfred, South Africa. *Oxford Univ. Press* : 1-331, pls. 1-70.
- VOKES, E.H., 1985 - A review of the new species named by Roland Houart. *Shells and Sea Life* 17 (5) : 157-162.

EXPLANATIONS TO FIGURES.

1. *Afrithophon kowieensis* (Sowerby, 1901). Cape, between Cape St Blaize and Port Elizabeth. NM B900 (7 mm.).
2. *Afrithophon agulhasensis* (Thiele, 1925). Syntype ZMB, Agulhasbank, 35°16'S, 22°26'E, -155 m. (7.1 mm.)
3. *Afrithophon insignis* (Sowerby, 1900). East London, Fuller's Bay. NM A649 (6.5 mm.).
4. *Afrithophon insignis* (Sowerby, 1900). Same locality. (6.1 mm.).
- 5-6. *Afrithophon inglorius* Houart sp.n. Transkei, off Nqabara Point (32°25.0' S, 28°58.3' E). Holotype NM C7868. (5.5 mm.).
7. *Trophon jucundus* Thiele, 1925. Cape, between Cape St Blaize and Port Elizabeth. R. Houart coll. (10 mm.).
8. *Trophon acceptans* Barnard, 1959. Holotype SAM A3449. Cape Point E.3/4 N. distant 36 miles, 630 fms. (19.6 mm.).
9. *Trophon acceptans* Barnard, 1959. Off Cape Point, deep water. NM 7999. (34.5 mm.).
10. *Trophon sansibaricus* Thiele, 1925. Transkei, off Rame Head (31°56.1' E , 29°26.5' E). -410-430 m. NM C5873. (3.6 mm.).
11. *Trophon sansibaricus* Thiele, 1925. Syntype ZMB, Zanzibar Canal, -463 m. (3.9 mm.).



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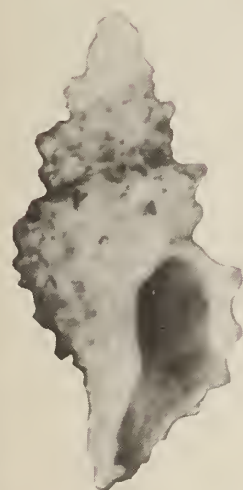
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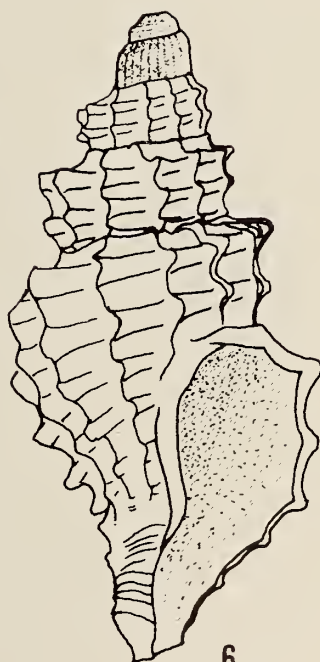
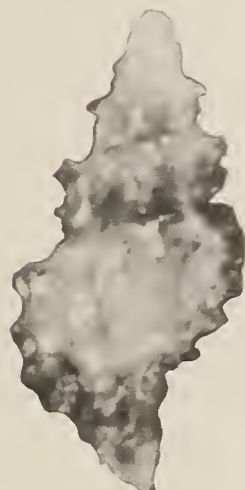
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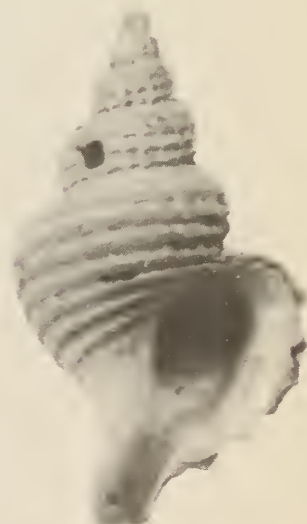
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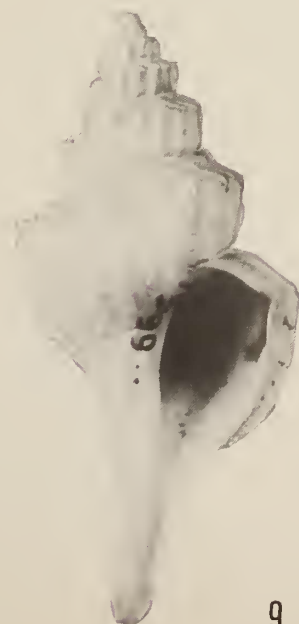
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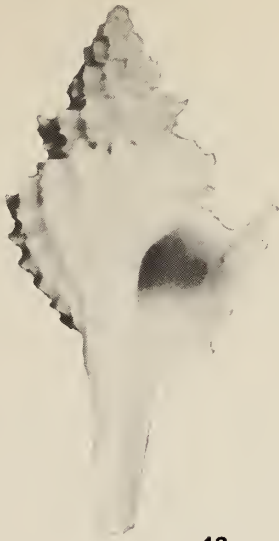


EXPLANATIONS TO FIGURES.

12. *Trophon mioplectos* Barnard, 1959. Holotype SAM A8631. 34°27' S, 25°42'E,
-256 fms. (3.9 mm.).
13. *Trophon pulchellus* Schepman, 1911. Syntype ZMA 3.11.081, 0°59.1' S , 129°48.8' E,
Halmahera Sea, -411 m. (16 mm.)
14. *Trophon pulchellus* Schepman, 1911. Holotype of *Trophon johannthielei* Barnard,
1959. Off East London, -400-450 fms. SAM A8844. (3.2 mm.).
15. *Trophon pistillum* Barnard, 1959. Holotype SAM A8842. Off Cape Natal (Durban),
-440 fms. (4.1 mm.).
16. *Trophon purdyae* Houart, 1983. Holotype NM B4770/T2667. Eastern Cape Province,
trawled between Jeffreys Bay and Port Elizabeth. (25 mm.).
17. *Trophon barnardi* Houart, sp. n. Holotype NM A4403. Off Cape St Blaize. (10.2 mm.).
18. *Trophon barnardi* Houart, sp. n. Paratype NM C4060, Transkei, off Qolora R.
(32°46.2' S , 28°37.5 E), -440-446 m. (7 mm.).
19. *Trophon* sp. (Thiele, 1925). 35°19' S, 20°12'E, -126 m., Agulhasbank. ZMB.
(3.2 mm.).
20. *Apixystus kilburni* Houart, sp. n. Holotype NM C1898, Transkei, off Rame Head
(31°50.7' S , 29°28.5' E), -150-160 m. (9.5 mm.).
21. *Apixystus kilburni* Houart, sp. n. Paratype NM C1236, Transkei : off Port
Grosvenor (29°57.6' S , 31°26.2 E), -100-115 m. (6.5 mm.).
22. *Apixystus transkeiensis* Houart, sp. n. Paratype NM C5861. Transkei, off Nthlo-
nyane R. (32° 17.5' S , 29°03.9' E), -130 m. (4.9 mm.).
23. *Apixystus* sp. NM C1236. Transkei : off Port Grosvenor (29°57.6' S , 31°26.2 E),
-100-115 m. (4.1 mm.).



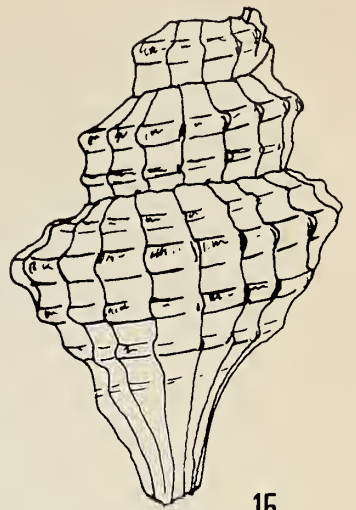
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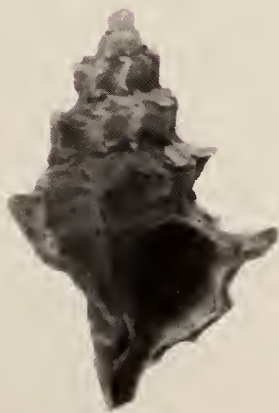
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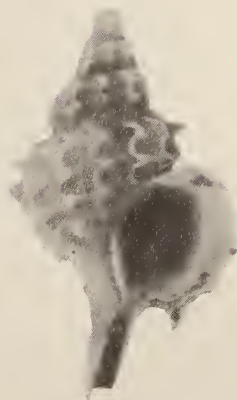
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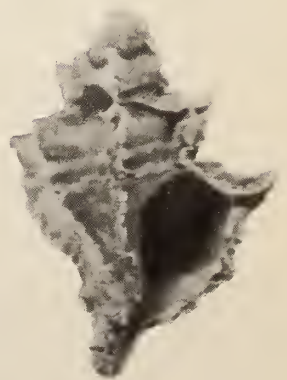
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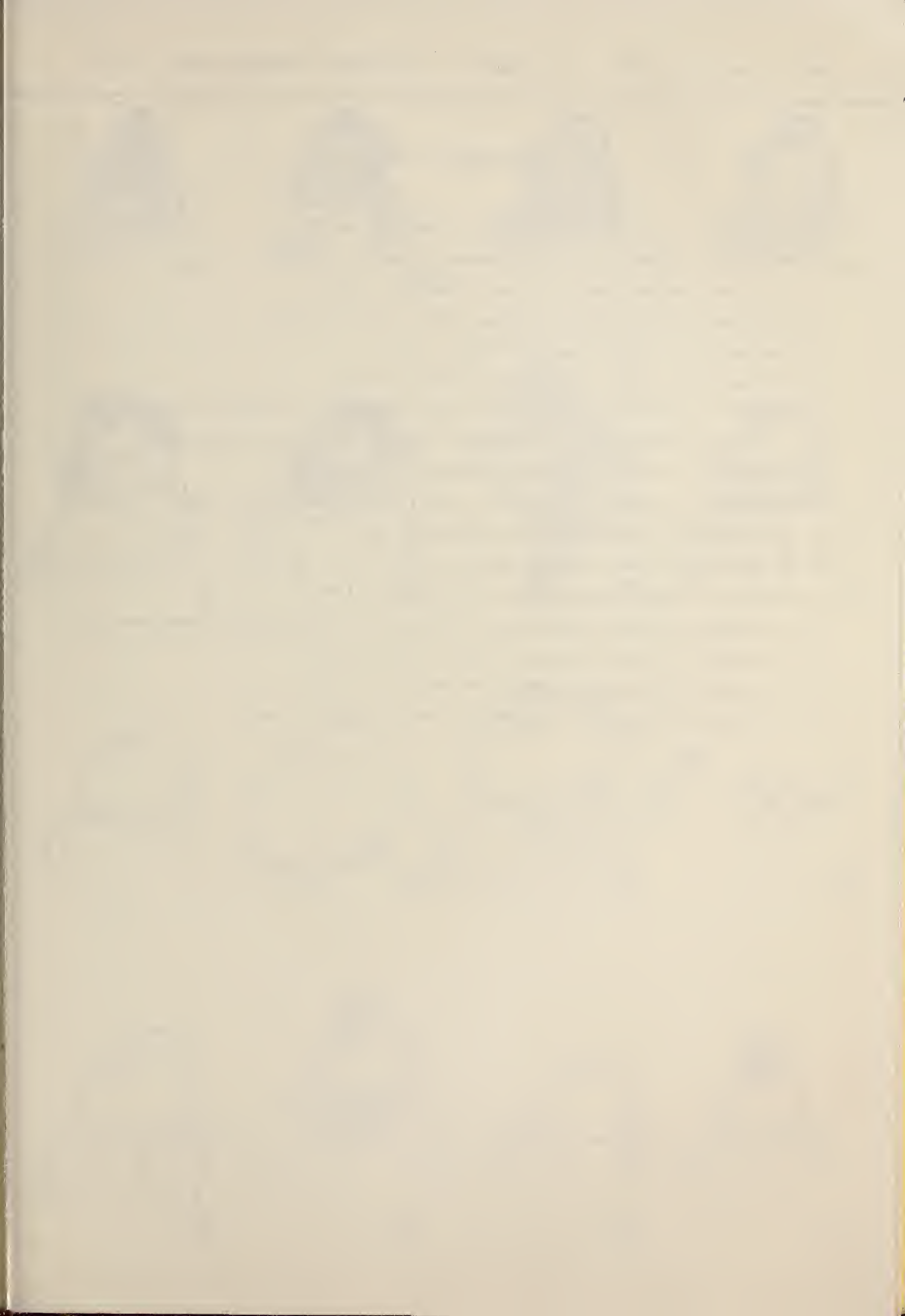


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EXPLANATIONS TO FIGURES.

24. Protoconch of *Afnitrophon kowieensis* (Sowerby) (x 33).
25. Protoconch of *Afnitrophon agulhasensis* (Thiele) (x 33).
26. Protoconch of *Afnitrophon insignis* (Sowerby) (x 33).
27. Protoconch of *Afnitrophon inglorius* Houart, sp.n. (x 33).
28. Protoconch of *Trophon jucundus* Thiele (x 34).
29. Protoconch of *Trophon sansibaricus* Thiele (x 38).
30. *Trophon* sp. (?juvenile of *Trophon acceptans* Barnard). Transkei, off Whale
Rock (32°00.9' S , 29°21.8 E), -400-420 m. (3.2 mm.). NM C7809.
31. Protoconch of *Trophon mioplectos* Barnard (x 37).
32. Protoconch of *Trophon* sp. (Thiele, 1925 : pl. 18, fig. 16) (x 28).
33. Protoconch of *Trophon pistillum* Barnard (x 38).
34. Protoconch of *Trophon purdyae* Houart (x 24).
35. Radula of *Trophon purdyae* Houart (from Houart, 1983).
36. Protoconch of *Trophon pulchellus* (holotype of *T. johannthielei* Barnard)(x 33).
37. Protoconch of *Trophon barnardi* Houart sp.n. (x 39).
38. Protoconch of *Apixystus kilburni* Houart sp.n. (x 27).
39. Protoconch of *Apixystus transkeiensis* Houart, sp.n. (x 36).



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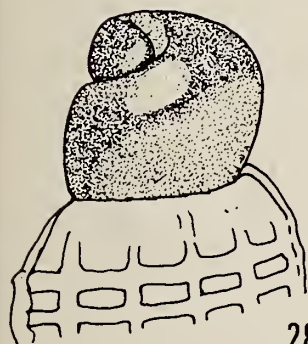
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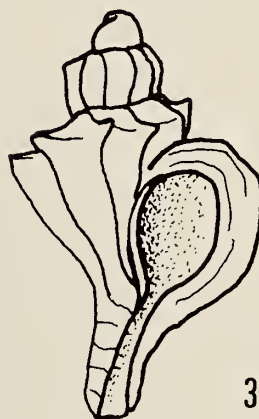
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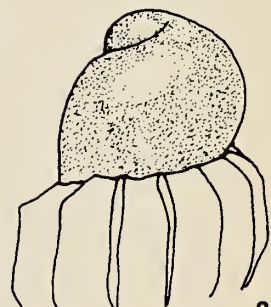
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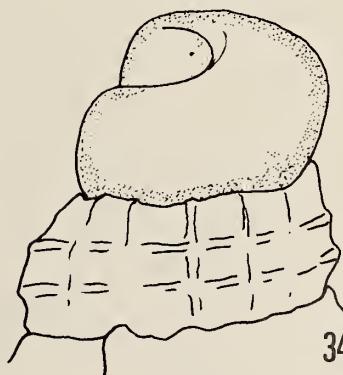
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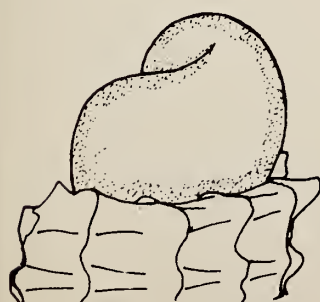


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0,1 mm.



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GEOGRAPHICAL DISTRIBUTION : MAPS.



Afritrophon insignis (Sowerby, 1900)



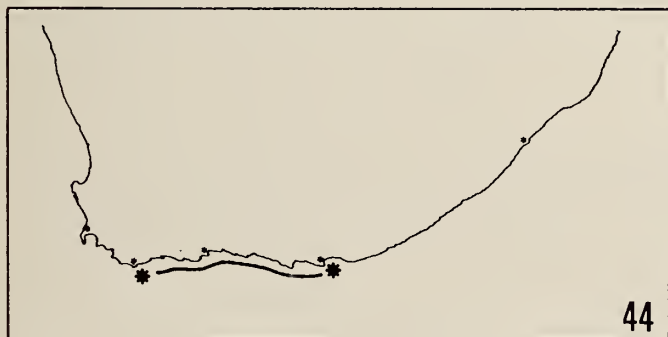
Afritrophon kowieensis (Sowerby, 1901)



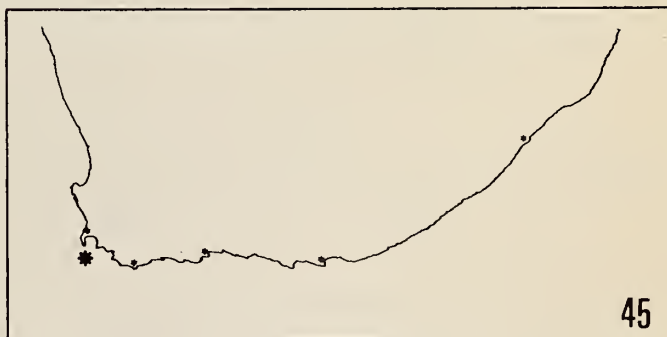
Afritrophon agulhasensis (Thiele, 1925)



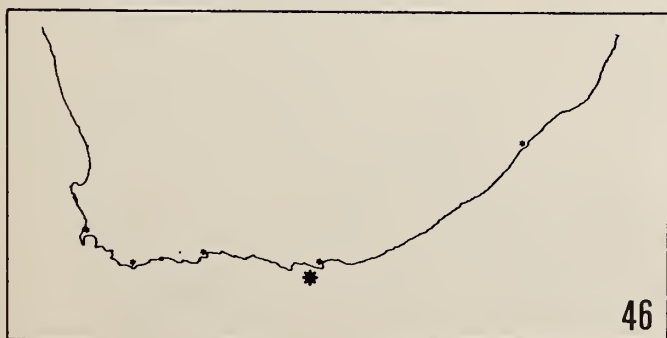
Afritrophon inglorius Houart, sp. n.



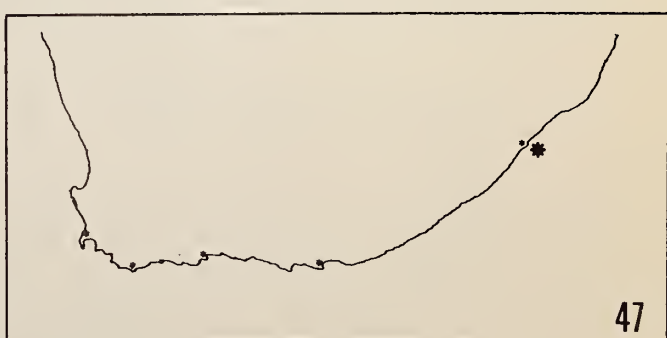
Trophon jucundus Thiele, 1925



Trophon acceptans Barnard, 1959.

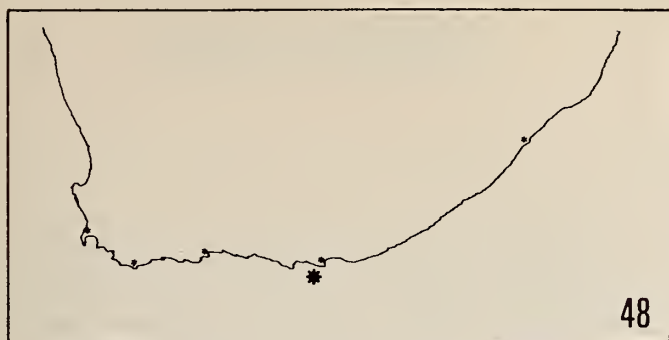


Trophon mioplectos Barnard, 1959



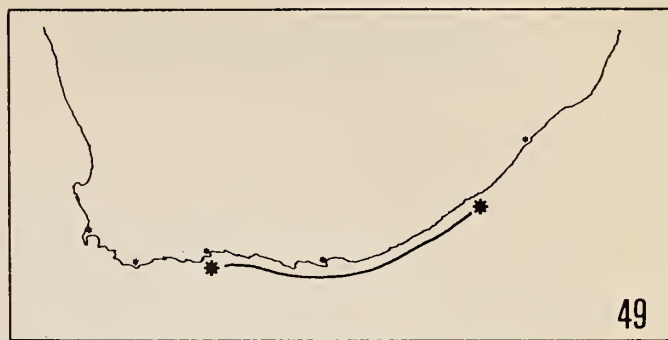
Trophon pistillum Barnard, 1959





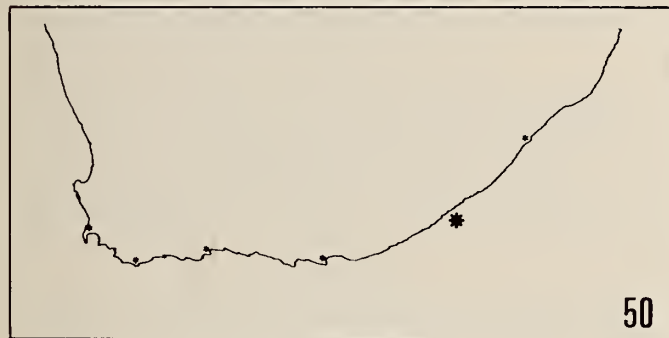
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Trophon purdyae Houart, 1983



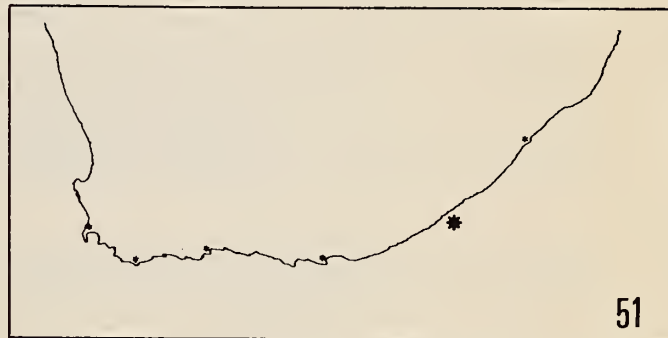
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Trophon barnardi Houart, sp.n.



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Apixystus kilburni Houart, sp.n.



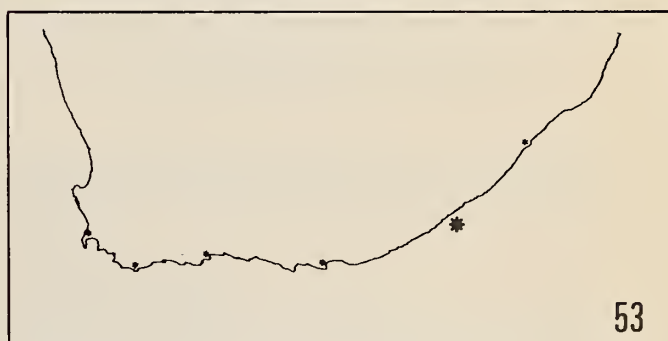
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Apixystus transkeiensis Houart, sp.n.



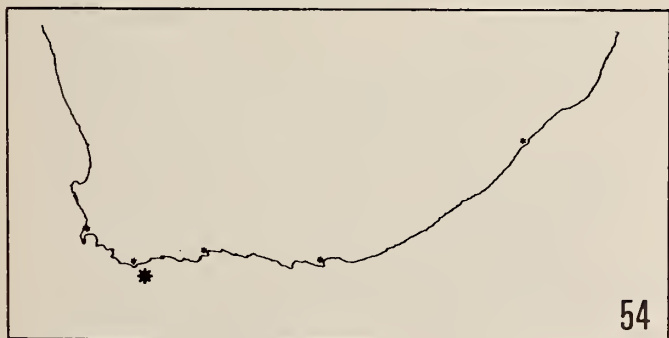
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Apixystus sp. (NM C1235 & NM C1236)



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Trophon sp. (NM C7809)



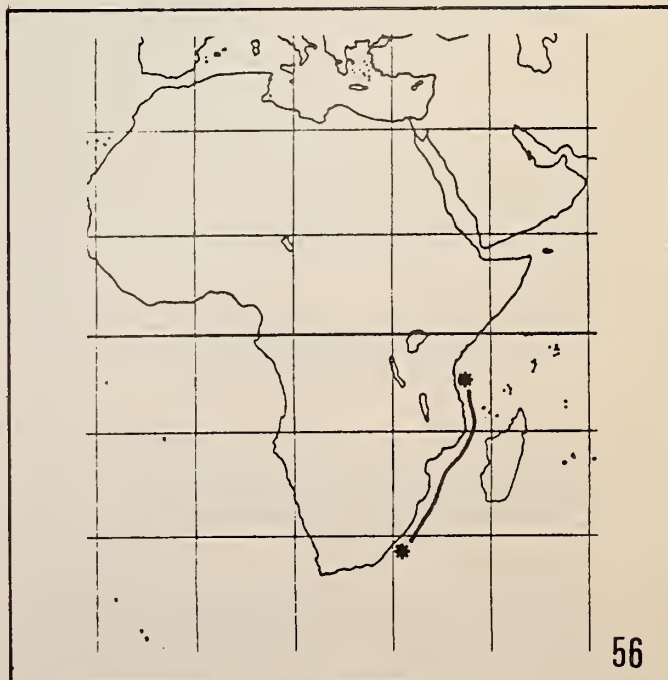
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Trophon sp. (Thiele, 1925)



55

Trophon pulchellus Schepman, 1911



56

Trophon sansibaricus Thiele, 1925

